4 Proposed modification

This chapter describes the proposed modification to the M4-M5 Link project approval.

4.1 Overview of the proposed modification

NSW Roads and Maritime Services (Roads and Maritime) is seeking to modify the existing approval for the construction and operation of the WestConnex M4-M5 Link project (the project). Approval for the project was granted by the NSW Minister for Planning on the 17 April 2018 (application number SSI 7485).

Condition of approval C19 provides that only one of two ancillary facility options (A or B) presented in Chapter 6 of the EIS can be implemented at Haberfield except if one site is used for parking and other works that do not exceed the 'noise affected' Noise Management Levels as identified in the Interim Construction Noise Guideline (NSW DECC, 2009) (ICNG).

A contractor has been appointed to construct stage 1 of the project on behalf of the proponent, Roads and Maritime. Stage 1 comprises the mainline tunnels between Haberfield and St Peters.

Construction design and planning has progressed since the assessment contained in the EIS and SPIR and a review of the concept design for the approved project has occurred. As a result, following ongoing construction design and planning, the proponent has further optimised the construction site arrangements assessed in the EIS and SPIR to reduce community impacts and to decrease the overall number of construction sites required for Stage 1 of the project.

The proponent proposes to:

- Remove the Darley Road civil and tunnel site (C4) from the project
- Proceed with Option A for the construction ancillary facilities proposed at Haberfield and Ashfield but with changes to some activities at a number of the construction ancillary facilities which arise from the removal of the Darley Road civil and tunnel site and the use of the Northcote Street site for tunnelling.

The proposed changes are summarised in **Table 4-1**.

Table 4-1 Change to construction ancillary facilities at Haberfield, Ashfield and Leichhardt

EIS and SPIR	Proposed modification
Wattle Street civil and tunnel site (C1a)	No change
Haberfield civil site (C2a/C2b)[1]	No change
Northcote Street civil site (C3a)	Northcote Street civil and tunnel site. Includes tunnelling, spoil handling and spoil haulage from this site.
Parramatta Road West civil and tunnel site (C1b)	Parramatta Road West civil site[2] Inclusion of a temporary pedestrian walkway above Parramatta Road to link to the Parramatta Road East civil site.
Parramatta Road East civil site (C3b)	Parramatta Road East civil site[2] Inclusion of a temporary pedestrian walkway above Parramatta Road to link to the Parramatta Road West civil site.
Darley Road civil and tunnel site (C4)	Removal of site

Notes

1. The use and footprint of this site was amended in sections A3.3.1, B11.6.8 and C6.1.3 of the SPIR to be as per the arrangement for the Haberfield civil site (C2b).
2. Condition C19 allowed use of the site for parking and other works that do not exceed the 'noise affected' Noise Management Levels as identified in the ICNG.

The proposed modification relates to Stage 1 of the approved project. The following points provide an overview of the proposed modification:

- The Northcote Street civil site (C3a) would become a civil and tunnel site. This would result in 24 hours, seven days a week tunnelling works being carried out from this location within an existing acoustic shed. The Northcote Street site is being used for tunnelling as part of the M4 East project. A construction access tunnel is to be provided from the Northcote Street site that utilises part of the existing access tunnel for the M4 East project. Proposed spoil haulage routes to and from this site are identified in this modification report. Relevant conditions of the project approval would apply to the use of this site for tunnelling and civil works to ensure potential impacts are managed consistently with the project approval
- The Parramatta Road West and Parramatta Road East civil sites (C1b and C3b) would be used as civil sites in accordance with condition of approval C19 and other conditions of the project approval. The sites would be used for site offices, light and heavy vehicle car parking, shuttle bus services, workshop and storage of equipment, materials and construction vehicles. Both sites would operate 24 hours a day, 7 days a week in accordance with the conditions of the project approval. No tunnelling, tunnel spoil stockpiling and handling or tunnel spoil haulage would occur at these sites
- A temporary pedestrian walkway would be constructed above Parramatta Road to connect the Parramatta Road East and Parramatta Road West civil sites. The pedestrian walkway would only be available for use by project staff during the construction phase of the project and would not be available for public use. The pedestrian walkway would be demobilised upon completion of the construction phase of the project
- Removal of the Darley Road civil and tunnel site (C4) from the project. No construction activities or permanent operational infrastructure would be provided at this location. The EIS provided for construction spoil to be removed from the Darley Road site. This spoil would now be removed from other tunnelling sites
- The relocation of the operational water treatment plant from the Darley Road site (as described in the EIS) to the Campbell Road motorway operations complex at the St Peters interchange.

The construction footprint for the proposed modification in Haberfield and Ashfield is shown in **Figure 4-1**.

The following sections provide a more detailed description of the proposed modifications to the project.

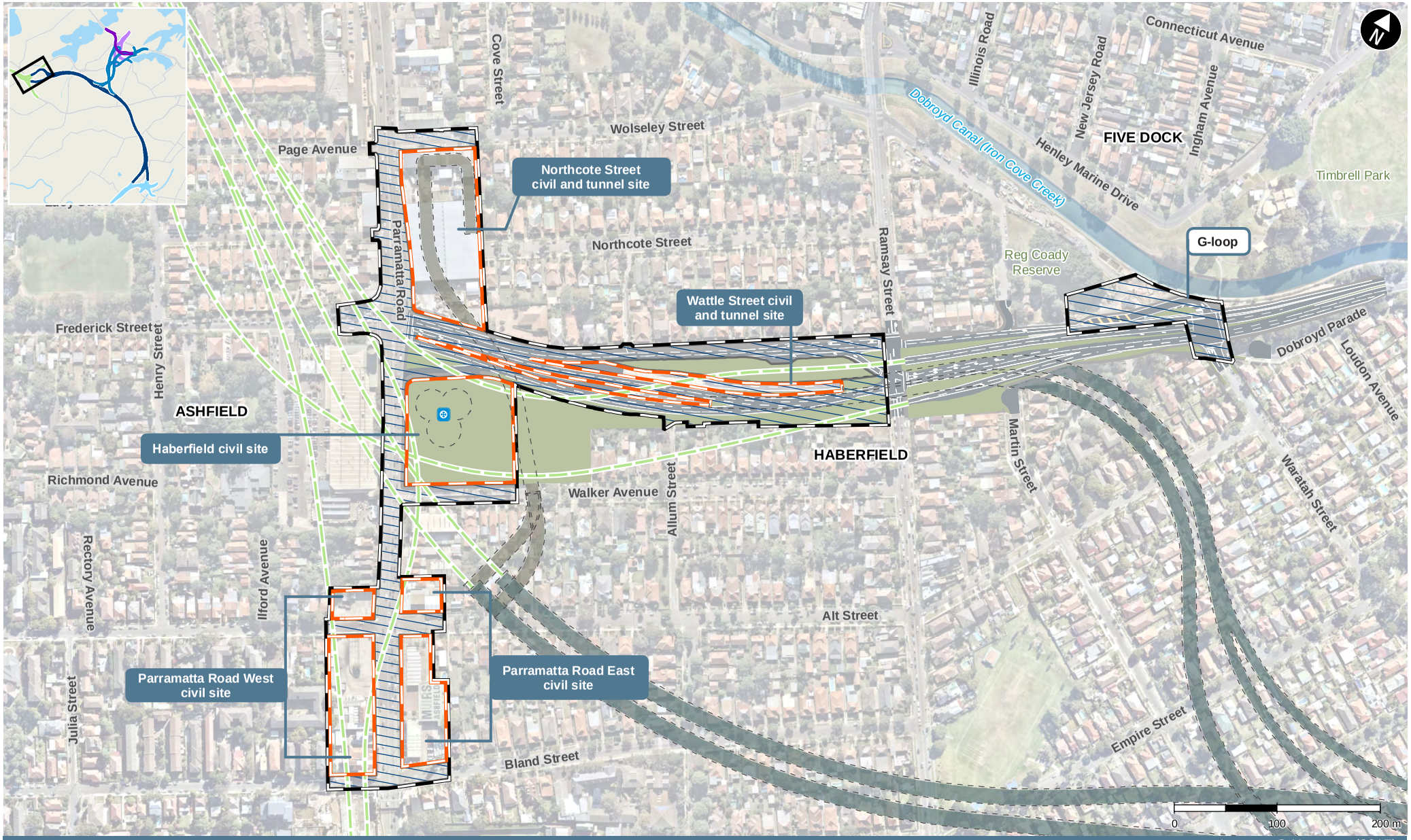


Figure 4-1 Construction project footprint at Haberfield/ Ashfield

4.2 Change of use at the Northcote Street civil and tunnel site

The Northcote Street site is located between Wattle Street and Wolseley Street at Haberfield. The site is currently being used as a tunnelling site for the M4 East project and was approved for use as a civil site during construction of the M4-M5 Link project.

The Northcote Street site is proposed to be used as a civil and tunnel site for the project. Once construction works for the M4 East project are completed at this site, the site would be altered to make it suitable for use by the M4-M5 Link project. Existing construction infrastructure that is currently being used for the M4 East project would, where required, be retained and used for the project. This includes hoarding, offices, access gates, noise walls, the acoustic shed structure and part of the construction access tunnel.

4.2.1 Site layout

The proposed indicative site layout is provided in **Figure 4-2**. Key elements that would be consistent with the existing layout for the M4 East project include the vehicle entry and exit locations, the acoustic shed and the entry to the temporary access tunnel. Infrastructure not required for construction of the M4-M5 Link project would be removed from the site. The final layout for this site would be confirmed during detailed design and detailed in the approved Site Establishment Management Plan (SEMP) and/ or approved Construction Environmental Management Plan (CEMP).

The existing acoustic shed is located in the middle of the site with tunnelling activities being undertaken inside the shed. The acoustic shed would be used to enclose most noise-generating and dust-generating activities associated with tunnelling works. Within the acoustic shed, the main construction activities proposed are spoil handling, stockpiling of spoil material along with the loading of spoil material onto haulage vehicles for transportation to designated landfill or reuse sites.

Spoil haulage vehicles would access the site from Parramatta Road city bound via a left turn movement using the existing vehicle crossing and site access gate prior to entering the acoustic shed. Space would be provided within the site to allow for some queuing of vehicles once they enter the site from Parramatta Road. Within the acoustic shed, spoil haulage vehicles would be loaded with spoil before exiting the site via a left turn movement into Wattle Street eastbound using the existing vehicle crossing. Space would also be provided within the site to allow for some queuing of vehicles before they exit the site to Wattle Street.

It is anticipated that around 566,300 cubic metres of spoil would be extracted via the Northcote Street civil and tunnel site over the duration of the project.

Table 4-2 provides indicative heavy and light construction vehicle numbers for the Northcote Street civil and tunnel site. The heavy vehicle numbers include both spoil haulage and other construction heavy vehicles.

Table 4-2 Indicative construction vehicle numbers – Northcote Street civil and tunnel site

Northcote Street civil and tunnel site									
Daily Vehicles		**AM peak hour**				**PM peak hour**			
(one way)		**(7.30-8.30am)**				**(4.15-5.15pm)**			
Heavy	**Light**	**Heavy vehicles**		**Light vehicles**		**Heavy vehicles**		**Light vehicles**	
		Arrive	**Depart**	**Arrive**	**Depart**	**Arrive**	**Depart**	**Arrive**	**Depart**
143	20	8	8	7	4	8	8	4	7

It is anticipated that around 140 heavy vehicles including spoil haulage vehicles would access the site per day. In addition it is anticipated that there would be a smaller number of light vehicles and general deliveries using the site each day.

Within the acoustic shed, two stockpile areas would be provided to allow the storage of spoil material prior to being removed from the site. The two stockpile areas have a combined capacity of around 7,000 cubic metres.

Outside of the acoustic shed, various ancillary facilities would be provided on the site. This would include a workforce shuttle bus and truck turning area and temporary utilities including compressors,

vents and fans. The existing water treatment plant for the M4 East project which is located outside the acoustic shed would be modified to meet the requirements of the M4-M5 Link project during construction.

Other facilities would include a mechanical workshop, store and offices. The existing noise wall along the eastern boundary of the site would be retained.

The proposed Northcote Street civil and tunnel site would require a new power supply connection. The power supply connection would be provided to the site from the Croydon Zone substation. The maximum demand of 10 Mega Volt Amp (MVA) would require two High Voltage Connections (HVCs) connected by underground cables to the Ausgrid (High Voltage) network.

The route of the power supply connection from the substation to Parramatta Road would generally be consistent with the approved route outlined in Appendix F Utility Management Strategy of the EIS. The main change would be the provision of a connection into the site from the western side of Parramatta Road and crossing to the eastern side of Parramatta Road into the site, near the intersection with Wattle Street.

The connection would be included in the updated Utility Management Strategy as required by condition of approval E140.

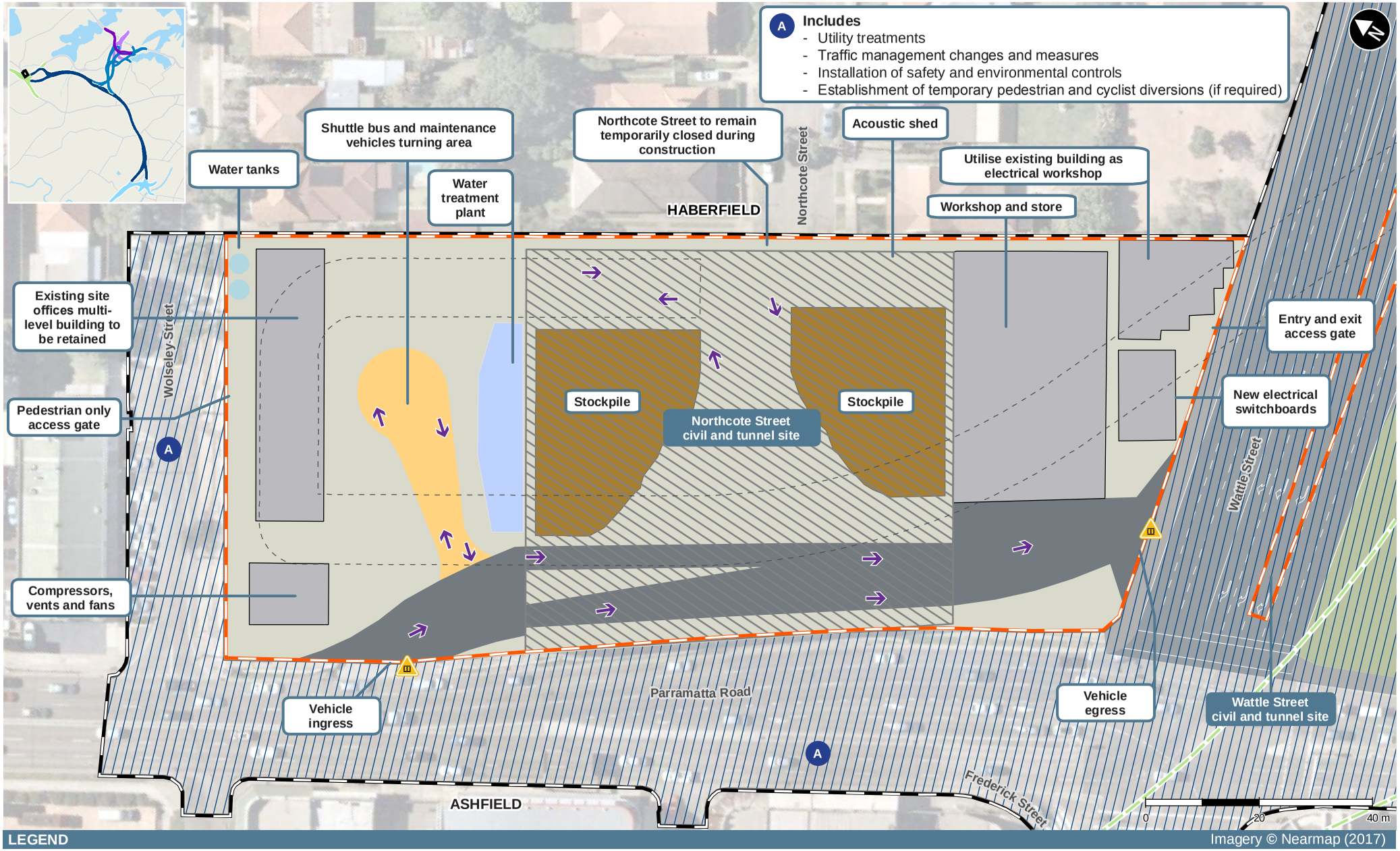


Figure 4-2 Indicative Northcote Street civil and tunnel site layout

4.2.2 Operating hours

Construction activities would operate 24 hours a day, seven days a week at the Northcote Street civil and tunnel site. Activities would predominately include tunnelling, spoil handling and spoil haulage and the delivery of shotcrete and concrete and general construction vehicles. The proposed hours of operation would be consistent with the operating hours used by the M4 East project at this site.

4.2.3 Construction access tunnel

The existing construction access tunnel located at the northern end of the site would be altered to meet the needs of the M4-M5 Link project. At present the access tunnel heads west under Parramatta Road to join the M4 East mainline tunnel. On completion of the M4 East project, demobilisation will occur, with some elements being retained for the M4-M5 Link project. Part of the existing M4 East access tunnel will be retained and blocked off adjacent to the eastern side of Parramatta Road. This will enable construction of the M4-M5 Link access tunnel.

For the M4-M5 Link project, the new construction access tunnel would head generally in a south eastern direction beneath Wattle Street, to the north of the Haberfield civil site and beneath a small number of residential properties (less than 10 properties) in Walker Avenue and Alt Street to connect with the M4-M5 Link mainline tunnels. This route has been selected as it would provide the most direct route from the access tunnel to the M4-M5 Link mainline tunnels. The route avoids the M4 East Motorway tunnels and Parramatta Road ventilation facility and ventilation tunnels. **Figure 4-3** shows the indicative alignment of the access tunnel with **Figure 4-4** providing an indicative cross section.

The access tunnel would have an average grade of around 14 per cent with a maximum depth of around 50 metres and will be around 430 metres in length. The access tunnel would connect to the mainline tunnels at around 30 metres below ground. The access tunnel would have an average width of 12 metres to allow two heavy construction vehicles to comfortably travel side by side in the access tunnel.

Two options are provided for how the construction access tunnel connects with the mainline tunnels. Both options would connect to the mainline tunnels under residential properties situated between Walker Avenue and Alt Street. The two options are shown on **Figure 4-3**.

For the construction of the access tunnel, roadheaders would be used to cut the top heading with a roadheader, surface miner or excavators with breakers used to excavate the bench. To support the access tunnel, steel rock bolts, mesh and shotcrete would be used. Spoil would be removed by off road articulated trucks to the surface where it would be stockpiled in the acoustic shed until transported to a disposal or reuse site. Construction of the access tunnel would take around nine months. Once construction works are complete the construction access tunnel would be backfilled.

Figure 4-3 Indicative alignment of construction access tunnel

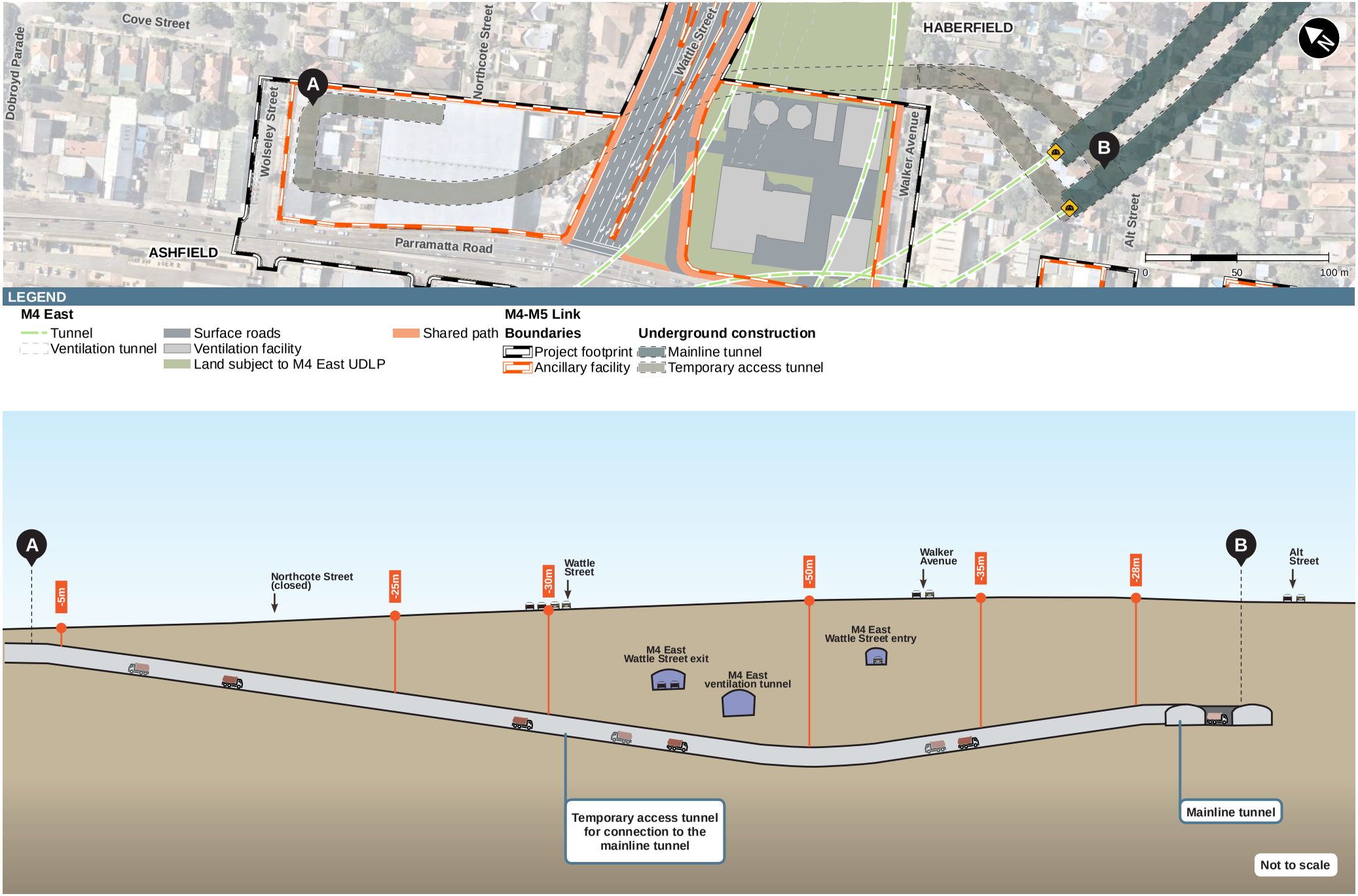


Figure 4-4 Indicative cross section of construction access tunnel

4.2.4 Spoil haulage routes

Two spoil haulage routes are proposed to be used in association with the Northcote Street civil and tunnel site. **Table 4-3** describes each proposed route for spoil haulage. **Figure 4-5** shows the proposed spoil haulage routes.

Table 4-3 Indicative spoil haulage routes for Northcote Street civil and tunnel site

Route	Spoil haulage route
Route A	Entry: via Parramatta Road city bound and then left turn into the site
	Exit: via left turn from site onto Wattle Street, then left turn into Ramsay Street/ Road, then left turn into Fairlight Street, then left turn into Great North Road, then right turn into Parramatta Road
Route B	Entry: via Parramatta Road city bound and then left turn into the site
	Exit: via left turn from site onto Wattle Street, then left turn onto the dedicated temporary construction vehicle turning lane (known as the G-loop) at the intersection of Dobroyd Parade and Waratah Street within part of the Reg Coady Reserve. Right turn onto Wattle Street from truck turning facility toward M4 East Motorway tunnels or Parramatta Road. The G-loop has been used during the construction of the M4 East project.

Traffic signals are provided at intersections where vehicle turning is required for both Route A and Route B. All of the roads included in the proposed haulage routes are state roads managed by Roads and Maritime. Generally, all roads along the proposed routes have two traffic lanes in each direction with some on street parking and are heavily trafficked.

The G-loop at the intersection of Dobroyd Parade and Waratah Street was established in the M4 East project and would be utilised for the proposed Route B. M4 East construction traffic and public motorists are able to use the G-loop during construction of the M4 East project. The access to the G-loop for public motorists was provided because the construction of the M4 East project removed the ability to turn right into Waratah Street when travelling eastbound on Dobroyd Parade.

Minor changes would be required to the proposed intersection design at Dobroyd Parade and Waratah Street (after completion of the M4 East project at the end of Q1 2019) to allow Route B to be used, including:

- Adjustments to the kerb and channel, including protection of new drainage infrastructure, along the north side of Dobroyd Parade at the entry and exit to the G-loop
- A short section of the median designed to separate the eastbound traffic on Dobroyd Parade from the eastbound traffic using the M4 East tunnel exit ramp would be removed to allow heavy vehicles to exit the G-loop and turn right onto Dobroyd Parade westbound
- A section of the pedestrian path along the north side of Dobroyd Parade would be realigned around the perimeter of the G-loop to avoid potential conflict between heavy vehicles and pedestrians
- Upgrade the traffic light phasing at this intersection to accommodate the G-loop traffic
- Signage and line marking associated with the above.

Use of the G-loop for the proposed modification would be restricted to M4-M5 Link construction vehicles. This restriction would be communicated through appropriate signage and line marking. Public motorists would not be able to use the G-loop. However, the completed M4 East project will provide a right turn lane from the M4 East eastbound lanes into Waratah Street at this location and a right turn lane from the Wattle Street eastbound lanes into Ramsay Street.

On completion of construction of the M4-M5 Link project, the G-loop infrastructure would be removed and that part of Reg Coady Reserve would be rehabilitated in accordance with the M4 East Residual Land Management Plan.

Once the G-loop is in operation, Route B would be the preferred spoil haulage route and would be available for use 24 hours a day and 7 days a week in accordance with condition of approval E70.

Route A would also be used as a spoil haulage route. However, in response to feedback received from stakeholders during the consultation process associated with the preparation of this modification report (refer **section 5.4**), it is proposed that Route A would generally only be used between 7am and 6pm Monday to Friday and 8am to 6pm on Saturdays except in the following circumstances and in accordance with the relevant conditions of the project approval:

- During the early stages of construction until such time as the works to facilitate operation of the G-loop were completed and the G-loop was functional
- In the event of heavy traffic congestion, an incident or maintenance works on the arterial road and/or motorway network which has the potential to detrimentally impact on the efficient use of the G-loop and result in delays for spoil haulage vehicles.

A spoil haulage protocol would be developed by the contractor in consultation with Roads and Maritime and the Transport for NSW Traffic Management Centre to manage spoil haulage movements on Routes A and B. The protocol would be documented in the Construction Traffic Transport and Access Management Sub-Plan.

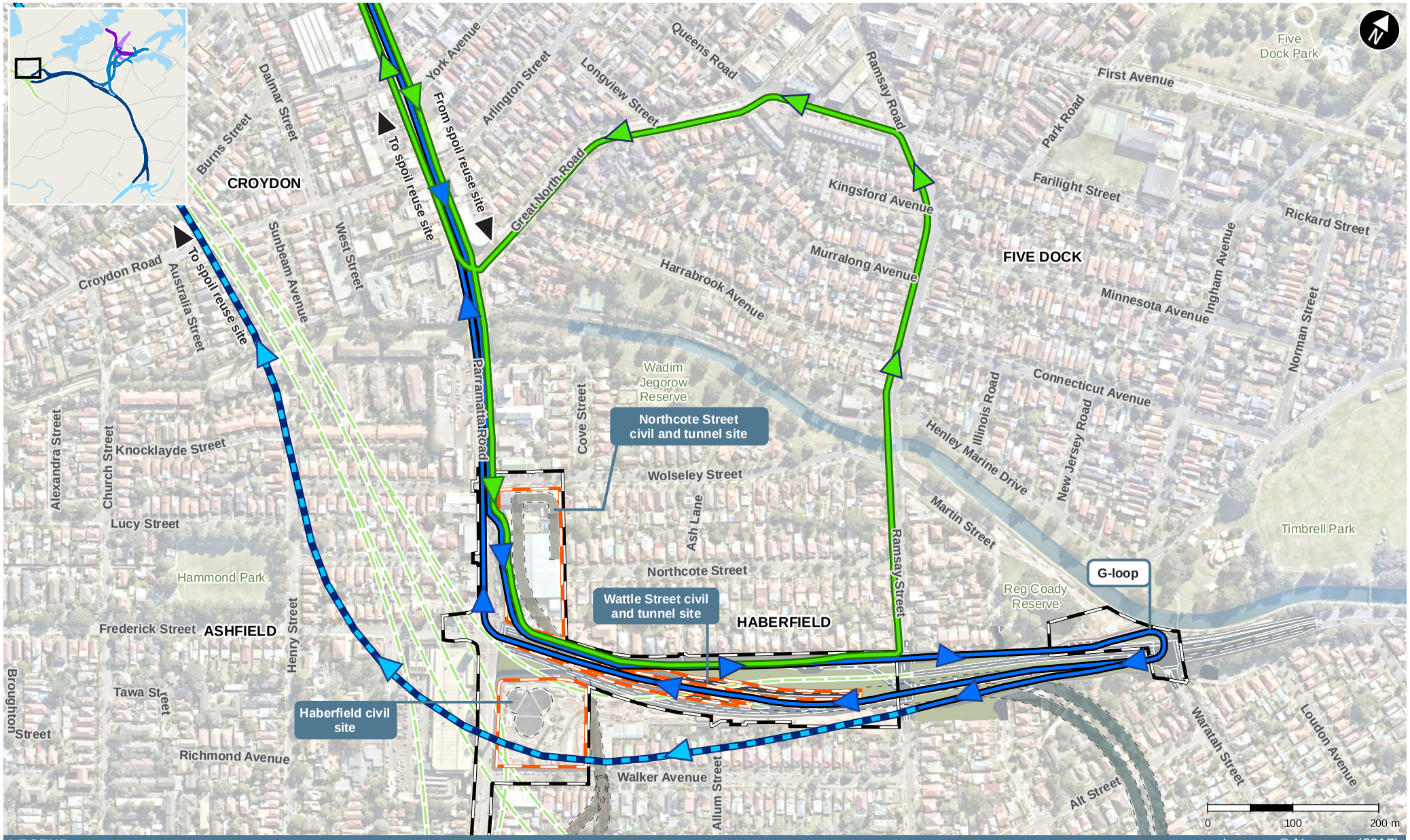


Figure 4-5 Proposed spoil haulage routes

4.2.5 Car parking

Limited car parking would be provided at the Northcote Street civil and tunnel site due to space constraints. Car parking for the construction workforce would primarily be provided at the Parramatta Road West and Parramatta Road East civil sites with around a total of 200 spaces being provided at these two sites. **Section 4.3** provides further information on the use of the Parramatta Road West and Parramatta Road East civil sites.

A shuttle bus would be provided to transport the majority of construction workforce to and from designated parking areas, which are anticipated to be predominantly at the Parramatta Road East and Parramatta Road West civil sites and the Northcote Street civil and tunnel site. Where possible, the workforce will be encouraged to walk between the Northcote Street, Parramatta Road and Wattle Street sites.

4.2.6 Program

An indicative program of works for the Northcote Street civil and tunnel site is shown in **Table 4-4**. The program shows that the construction activity at the Northcote Street site commences in Q2 2019 and continues through to end of Q1 2023. Once construction works are complete, construction facilities would be demobilised and the site would be rehabilitated in accordance with the M4 East Residual Land Management Plan. It is expected that Northcote Street would be reinstated, as provided for under the M4 East project approval.

Table 4-4 Indicative program of works - Northcote Street civil and tunnel site

	Indicative construction timeframe																							
Construction Activity	2018				2019				2020				2021				2022				2023			
Refurbishment and traffic management						■	■																	
Site establishment						■	■																	
Construct temporary access tunnel							■	■	■															
Tunnelling										■	■	■	■	■	■	■	■							
Civil and mechanical fitout											■	■	■	■	■	■	■	■						
Testing and commissioning																■	■	■	■	■				
Site demobilisation and rehabilitation																	■	■	■	■	■			

4.3 Parramatta Road West and Parramatta Road East civil sites

The Parramatta Road West and East civil sites are located on the western and eastern sides of Parramatta Road between around Alt Street and Bland Street at Ashfield and Haberfield.

The Parramatta Road West and Parramatta Road East civil sites would be used in accordance with condition of approval C19 and other conditions of the project approval. The sites would be used for parking and other works that do not exceed the 'noise affected' Noise Management Levels as identified in the ICNG.

The sites would be used for site offices, light and heavy vehicle car parking, shuttle bus services, workshop and storage of equipment, materials and construction machinery. Both sites would operate 24 hours a day, 7 days a week in accordance with the conditions of the project approval.

The sites would be used to support civil and tunnelling construction activities at other project construction sites, primarily within the Haberfield and Ashfield area. No tunnelling, tunnel spoil stockpiling and handling or tunnel spoil haulage would occur at these sites.

4.3.1 Site layout

The proposed indicative site layout for Parramatta Road West and Parramatta Road East civil sites is provided in **Figure 4-6**. The layout for the sites would be confirmed during detailed design and in the approved Site Establishment Management Plan (SEMP) and/or approved Construction Environmental Management Plan (CEMP).

Some existing buildings on the sites may be retained and used. Site establishment works would be carried out which would include demolition of buildings and structures, vegetation clearing and removal, establishment of vehicle entry and exit points, establishment of temporary noise attenuation measures and utility works. These site establishment works were assessed in the EIS.

Vehicle access points are provided for Parramatta Road West civil site from Parramatta Road, Bland Street and Alt Street. The entry along Parramatta Road would only be accessible for west-bound traffic with a left turn into the site. Exit onto Parramatta Road would be left turn out to travel west-bound. Entry and exit points are also proposed onto Bland Street and Alt Street to allow traffic to access between the sites or onto Parramatta Road as shown in **Figure 4-6**.

Light and heavy vehicle access points for the Parramatta Road East civil site would be from Parramatta Road and Alt Street. Entry would be left turn in, only available for east bound traffic. Exit would be left turn out to travel east bound along Parramatta Road. Vehicle access points would not be provided from Bland Street for this site.

Table 4-5 provides indicative heavy and light vehicle numbers for the Parramatta Road West and Parramatta Road East civil sites.

Table 4-5 Indicative construction vehicle numbers

Parramatta Road West and Parramatta Road East civil sites										
Site	**Daily Vehicles**		**AM peak hour**				**PM peak hour**			
	(one way)		**(7.30-8.30am)**				**(4.15-5.15pm)**			
	Heavy	**Light**	**Heavy vehicles**		**Light vehicles**		**Heavy vehicles**		**Light vehicles**	
			Arrive	**Depart**	**Arrive**	**Depart**	**Arrive**	**Depart**	**Arrive**	**Depart**
West	25	306	7	7	18	5	7	7	5	31
East	25	210	1	1	12	4	1	1	4	20

It is proposed that the existing bus stop on the western side of Parramatta Road north of the intersection with Bland Street would be relocated to avoid conflict between buses and heavy vehicles attempting to access the nearby Parramatta Road West civil site. The bus stop would be moved to a new location around 150 metres to the north on Parramatta Road. The relocation of the bus stop would be subject to on-going consultation with Transport for NSW, Transit Services and other stakeholders and would be detailed in the Traffic and transport and access CEMP Sub-Plan.

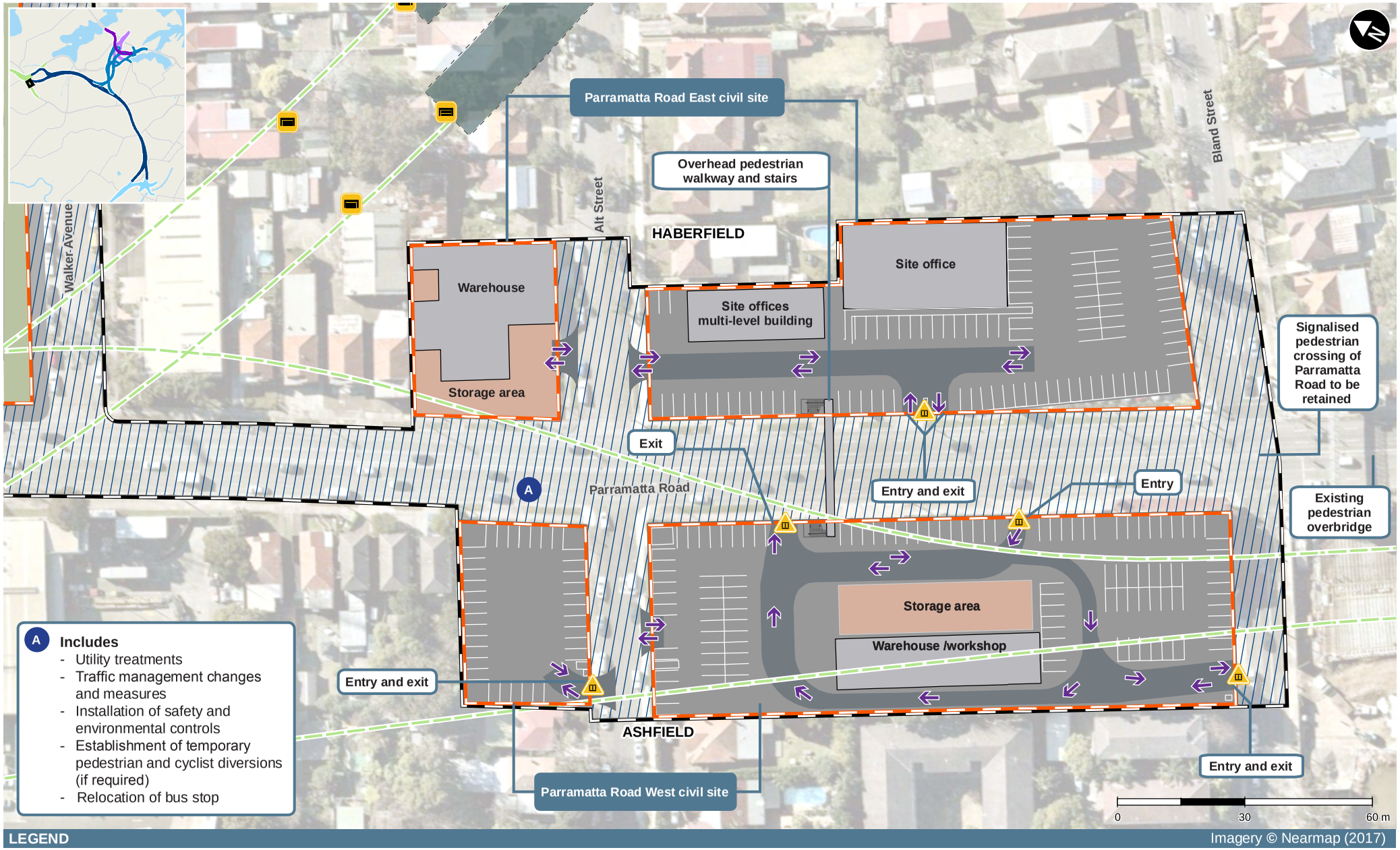


Figure 4-6 Indicative Parramatta Road West and East civil sites layouts

4.3.2 Operating hours

The Parramatta Road West and Parramatta Road East civil sites would be used 24 hours a day, seven days a week to support civil and tunnelling construction activities at other project construction sites, primarily within the Haberfield and Ashfield area. No tunnelling, tunnel spoil stockpiling and handling or tunnel spoil haulage would occur at these sites.

Site establishment works would generally occur during standard construction hours of 7.00 am to 6.00 pm Monday to Friday and 8.00 am to 6.00 pm on Saturdays (as permitted by conditions of approval E68 and E69 of the project approval) or as provided for in other conditions of approval and the project Environment Protection Licence (EPL).

4.3.3 Car parking

A total of around 200 car parking spaces would to be provided at the Parramatta Road West and Parramatta Road East civil sites for the construction workforce. The parking spaces would be used by construction workforce staff working at other project construction sites and for some heavy vehicle parking. A shuttle bus service would be provided to transport the majority of the construction workforce to and from construction sites. Where possible the workforce would be encouraged to walk between sites. As required by condition of approval E54, a Construction Parking and Access Strategy would be prepared by the contractor to assist with managing parking demand for the project.

The site would also be used for heavy vehicle parking. The type of heavy vehicles likely to use the sites for parking would include rigid and articulated trucks dropping off or picking up materials or equipment from laydown areas, vehicles or equipment to be serviced at the workshop and short term layover of trucks across working shifts. No tunnel spoil trucks would use these sites.

4.3.4 Program

An indicative program of works for Parramatta Road West and Parramatta Road East civil sites is provided in **Table 4-6**. The construction program shows construction activities commencing in Q3 2018 and continuing through to the end of Q1 2023. Once construction activities are complete, construction facilities would be removed and the site would be rehabilitated in accordance with the Residual Land Management Plan for the project.

Table 4-6 Indicative program of works - Parramatta Road West and East civil sites

Construction Activity	Indicative construction timeframe																							
	2018				2019				2020				2021				2022				2023			
Site establishment and utility works			■	■	■	■																		
Site operations – offices, warehouse/storage, workshop and parking				■	■	■	■	■	■	■	■	■	■	■	■	■	■	■						
Site demobilisation and rehabilitation																		■	■	■	■			

4.4 Parramatta Road West and East civil sites – pedestrian walkway

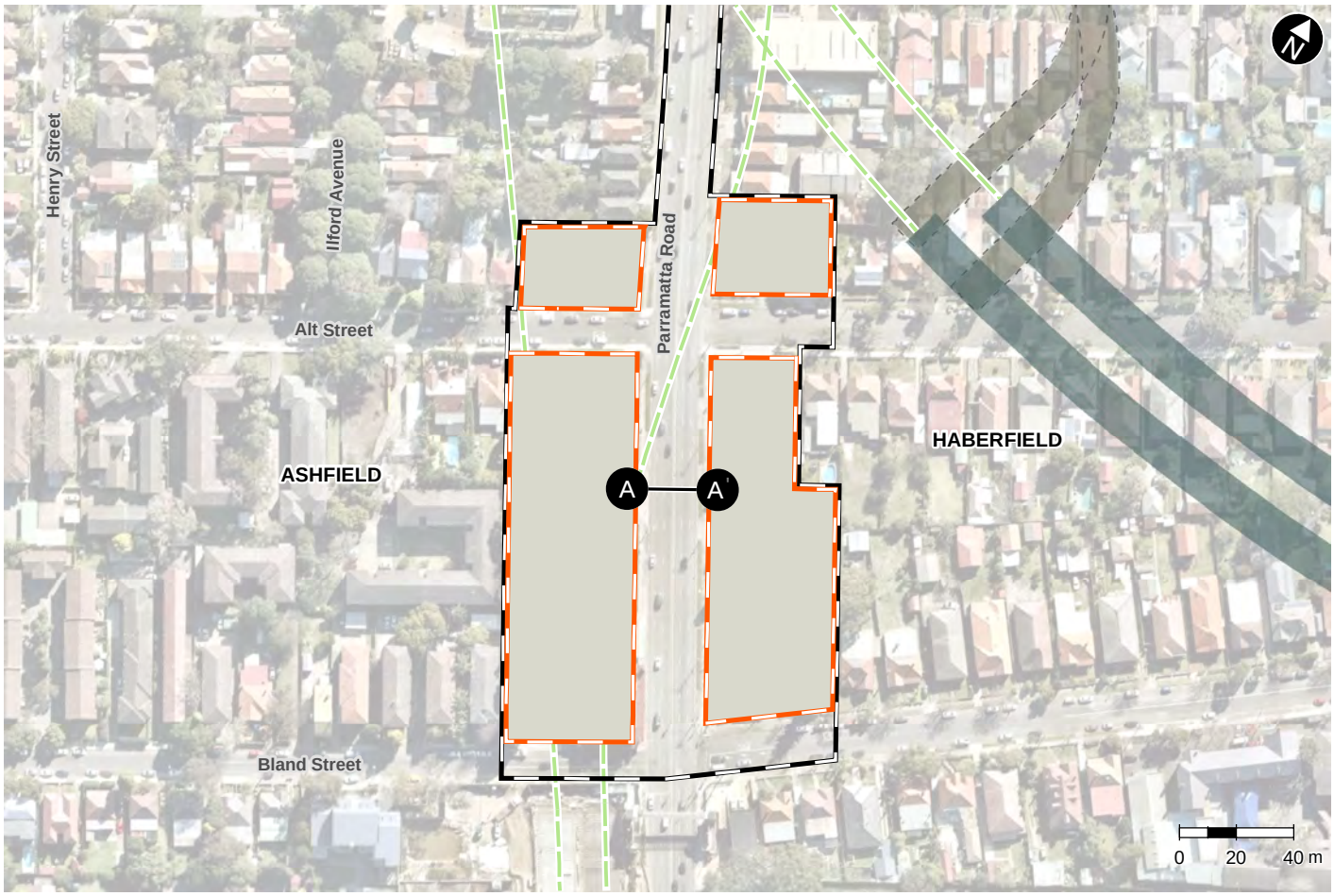
This modification proposes to link the Parramatta Road West and Parramatta Road East civil sites with a temporary overhead pedestrian walkway above Parramatta Road which would only be used by the construction workforce and would not be available for public use. Access to the walkway would be via stairs at either end located within the work sites. The pedestrian walkway is provided to allow the construction workforce to easily move between the two sites without the need to use the existing at-grade pedestrian crossing on Parramatta Road at the traffic signals.

The structure would provide sufficient clearance for vehicles travelling along Parramatta Road with the base of the walkway being around six metres above Parramatta Road. The overall height of the walkway structure would extend to around 10 metres above Parramatta Road. Both the walkway and access towers would be enclosed to provide weather protection for users and enable use 24 hours a

day, seven days a week. Lighting would be provided to allow the walkway to be used after daylight hours.

The bridge structure would be fabricated offsite in sections that are of suitable size for transportation to the site. The sections would be welded or bolted together at the Parramatta Road sites. The supporting steel towers would be assembled on site and mounted on concrete foundations to support the pedestrian walkway. The bridge would be a single span and would be lifted into position by a crane. Installation of the span would be carried out at night with full road closure of Parramatta Road and traffic detours provided. A Road Occupancy Licence from the Transport for NSW Traffic Management Centre would be required for the installation of the pedestrian walkway, allowing for the temporary closure of Parramatta Road. Once the walkway span is in place the roof and deck would be installed.

The pedestrian walkway is expected to be in place from around late 2018 to end of Q1 in 2023. Once construction works are complete, the pedestrian walkway would be removed following a similar process to that described above, but in reverse. A site layout showing the location of the walkway and elevation plan of the pedestrian walkway are provided in **Figure 4-7**.



Imagery © Nearmap (2017)

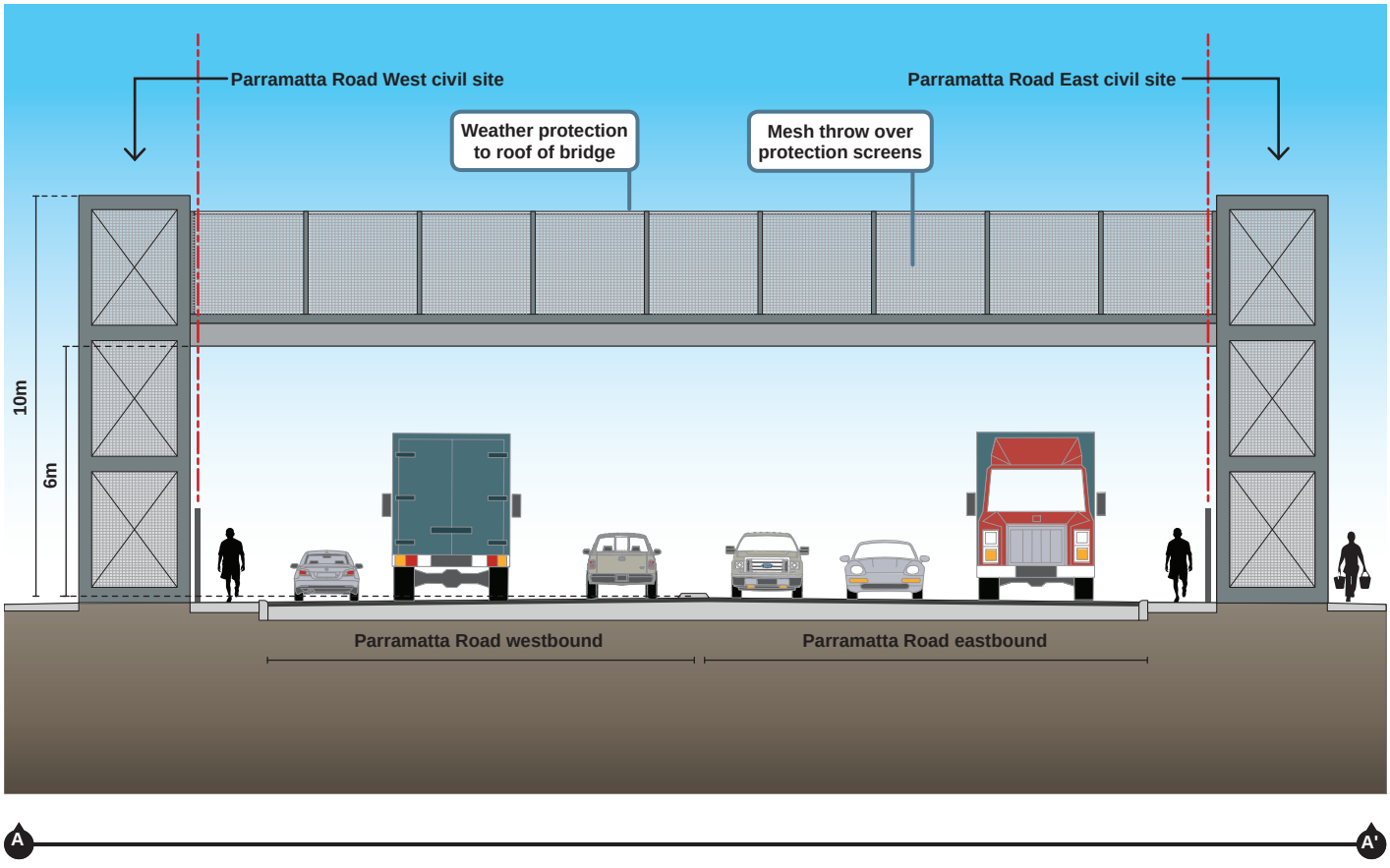


Figure 4-7 Indicative overhead pedestrian walkway over Parramatta Road.

4.5 Removal of Darley Road site from project

The EIS identified the site as the Darley Road civil and tunnel site (C4) for the construction of the project and as the Darley Road motorway operations complex (MOC1) for the operation of the project.

Ongoing construction design and planning has determined that the Darley Road site is no longer required to support the construction and operation of the project.

4.5.1 Relocation of construction activities

Construction activities would not be carried out at the Darley Road civil and tunnel site. The construction activities proposed for Darley Road civil and tunnel site as described in the EIS would be accommodated at other project construction sites.

The approved project involved the removal and transportation of around 550,300 cubic metres of tunnel spoil from the Darley Road civil and tunnel site as described in section 23.3.2 of the EIS. Given that the length of the mainline tunnel would not change for the proposed modification, this spoil volume would be required to be removed from other tunnelling sites.

The overall intensity (rate) of spoil removal at approved tunnelling sites is not expected to change, however the additional spoil to be removed would require the extension of the tunnelling component of the overall construction program by around six months.

4.5.2 Relocation of operational ancillary infrastructure

The EIS described that an operational water treatment plant and substation would be located at the Darley Road motorway operations complex. The removal of the Darley Road site from the project would result in the relocation of the operational water treatment plant to the Campbell Road motorway operations complex at St Peters interchange. The relocation of the operational water treatment plant is described in **section 4.6** below.

The permanent substation proposed at the Darley Road site in the EIS is no longer required. As described in the EIS, permanent power for Stage 1 of the M4-M5 link project will be supplied via the intake substation at the Campbell Road motorway operations complex at the St Peters interchange. Section 5.10.1 of the EIS and section 4.2.4 of Appendix F (Utilities Management Strategy) of the EIS provide further details on the proposed arrangements to provide electricity to the project.

The removal of the motorway operation complex from Darley Road would result in no permanent infrastructure for the project being located at this location.

4.6 Relocation of operational water treatment plant to St Peters

The proposed relocation of the operational water treatment plant to the Campbell Road motorway operations complex would result in the operational footprint of the motorway operations complex at St Peters being increased.

Figure 4-8 provides an indicative site layout for the Campbell Road motorway operations complex at St Peters interchange which includes an indicative location for the operational water treatment plant. The motorway operation complex is located on the cut and cover structure above the M4-M5 Link ramps at the St Peters interchange which is being constructed by the New M5 project and on land to the immediate east. The motorway operations complex as described in the EIS includes ventilation facilities and a substation. Additional land adjacent to, and to the immediate south east of the motorway operations complex would be required to accommodate the operational water treatment plant.

The increase in footprint of the motorway operations complex would have only a minimal impact on the total area of proposed open space on the southern side of Campbell Road at the St Peters interchange that is being delivered as part of the New M5 project. The increase in footprint will also have some impact on the proposed landscaping area for the St Peters interchange to be provided in this location.

The overall design, capacity and discharge rate of the water treatment plant would remain similar to the proposed water treatment plant to be located at Darley Road (as detailed in section 2.4.2 of

Appendix Q (Surface water and flooding) of the EIS). The water treatment plant would be designed so that discharge would be in accordance with the condition of approval E187. The final design for the water treatment plant would be confirmed during detailed design and would be subject to the relevant M4-M5 Link Urban Design and Landscape Plan for the project.

For the proposed modification three options would be considered for the discharge of treated wastewater from the mainline tunnel drainage system:

- Option 1: Wastewater would be pumped to the water treatment plant at the Campbell Road motorway operations complex. Treated water would discharge to the stormwater basin and/or drainage network within the St Peters interchange site being constructed by the New M5 project. This drainage network would then discharge to Alexandra Canal
- Option 2: Wastewater would be pumped to the water treatment plant at the Campbell Road motorway operations complex .Treated water would be discharged to the existing drainage network and then to Alexandra Canal
- Option 3: Wastewater would be discharged to Sydney Water's sewage system in accordance with a Trade Waste Agreement.

The detailed design for the water treatment plant may include a combination of the above options.

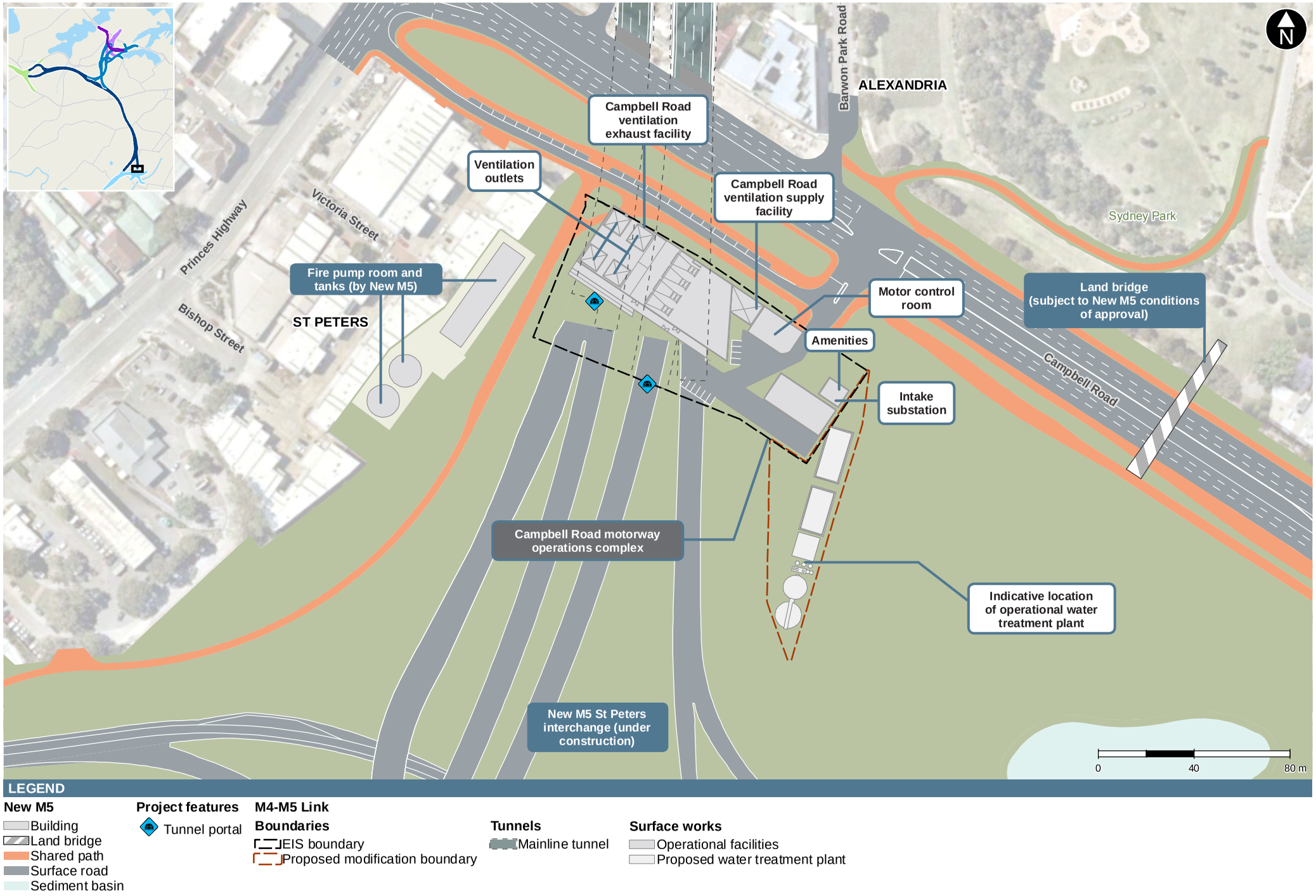


Figure 4-8 Indicative Campbell Road motorway operations complex layout including proposed water treatment plant

4.7 Conditions of approval

The proposed modification would require some of the conditions of the project approval to be amended as a number of the proposed changes would not be consistent with the existing project approval. **Chapter 7** (Conditions of approval) provides a review of the relevant conditions in relation to the modification and details the changes that are proposed.

4.8 Site establishment and/or construction works

Site establishment works (in accordance with an approved Site Establishment Management Plan) and/or construction works (in accordance with an approved Construction Environmental Management Plan) are proposed at a number of the project construction sites and will be carried out in accordance with the existing conditions of approval for the project.